

IN THE UNITED STATES PATENT AND TRADEMARK OFFICE

Applicant: George E. Berkey
Lisa A. Moore
Michelle D. Pierson

Serial No: To Be Assigned

Filed: Herewith

For: PROJECTION LITHOGRAPHY
PHOTOMASKS AND METHOD OF
MAKING

Examiner: To Be Assigned

Group Art Unit: To Be Assigned

INFORMATION DISCLOSURE STATEMENT
UNDER 37 C.F.R. §§ 1.56, 1.97 – 1.98

Honorable Asst. Commissioner of Patents and Trademarks
Patent and Trademark Office
Washington, DC 20231

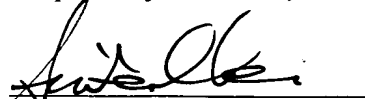
Dear Sir:

The Examiner's attention is hereby directed to the following reference(s) listed on the attached Form PTO-1449 for consideration in connection with the examination of the above-identified patent application. A copy of each of the reference(s) is enclosed August 23, 2001.

This submission does not represent that a search has been made or that no better art exists and does not constitute an admission that each or all of the enclosed documents constitute "prior art." If it should be determined that any of the submitted documents do not constitute "prior art" under United States law, applicant(s) reserve the right to present to the office the relevant facts and law regarding the appropriate status of such documents.

Applicant(s) further reserve the right to take appropriate action to establish the patentability of the disclosed invention over the enclosed references, should one or more of the references be applied against the claims of the present application.

Respectfully submitted,

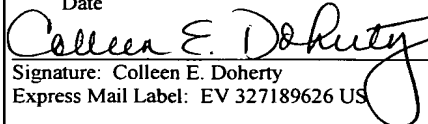


Siwen Chen
Corning Incorporated
SP-TI-03-1
Corning, NY 14831
(607) 248-1253

Date: December 10, 2003

I hereby certify that this paper is being deposited with the United States Postal Service "Express Mail Post Office to Addressee" service under 37 CFR 1.10 on the date indicated above and is Addressed to the Commissioner for Patents, PO Box 1450, Alexandria, VA 22313-1450

On 12-10-03
Date



Signature: Colleen E. Doherty
Express Mail Label: EV 327189626 US

FORM PTO-1449 (MODIFIED) LIST OF PATENTS AND PUBLICATIONS FOR APPLICANTS INFORMATION DISCLOSURE STATEMENT	ATTORNEY DOCKET NO. Berkey 47-9-6B		SERIAL NO. To Be Assigned
	APPLICANT Berkey et al.		
	FILING DATE: Herewith	GROUP: To Be Assigned	

REFERENCE DESIGNATION			U.S. PATENT DOCUMENTS				
Examiner Initial		Document Number	Date	Name	Class	Sub-Class	Filing Date if Approp.
	AA	1,283,333	10/29/18	Shaw			
	AB	2,188,121	1/23/40	Smith	47	78.1	
	AC	3,740,207	6/19/73	Bogrets et al.	65	67	
	AD	3,933,454	1/20/76	DeLuca	65	3	
	AE	4,221,825	9/9/80	Guerder et al.	427	34	
	AF	4,345,928	8/24/82	Kawachi et al.	65	18.2	
	AG	4,363,647	12/14/82	Bachman et al.	65	18.2	
	AH	4,612,023	9/16/86	Kreutzer et al.	65	32	
	AI	4,650,511	3/17/87	Koya et al.	65	30.1	
	AJ	4,666,495	5/19/87	Kreutzer et al.	65	258	
	AK	4,789,389	12/6/88	Schermerhorn et al.	65	31.2	
	AL	4,917,718	4/17/90	Berkey	65	108	
	AM	5,043,002	8/27/91	Dobbins et al.	65	31.2	
	AN	5,326,729	7/5/94	Yaba et al.	501	54	
	AO	5,364,433	11/15/94	Nishimura et al.	65	17.4	
	AP	5,410,428	4/25/95	Yamagata et al.	359	350	
	AQ	5,415,953	5/16/95	Alpay et al.	430	5	
	AR	5,474,589	12/12/95	Ohga et al.	65	397	
	AS	5,599,371	2/4/97	Cain et al.	65	413	
	AT	5,609,666	3/11/97	Heitmann	65	421	
	AU	5,655,046	8/5/97	Todoroki et al.	385	144	
	AV	5,683,483	11/4/97	Yosiaki et al.	65	102	
	AW	5,667,547	9/16/97	Christiansen et al.	65	17.4	
	AX	5,668,067	9/16/97	Araujo et al.	501	54	
	AY	5,679,125	10/21/97	Hiraiwa et al.	65	397	
	AZ	5,683,483	11/4/97	Yosiaki et al.	65	102	

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REFERENCE DESIGNATION				U.S. PATENT DOCUMENTS			
Examiner Initial		Document Number	Date	Name	Class	Sub-Class	Filing Date if Approp.
	AA1	5,698,484	12/16/97	Maxon	501	54	
	AB1	5,702,495	12/30/97	Hiraiwa et al.	65	17.1	
	AC1	5,702,847	12/30/97	Tarumoto et al.	430	5	
	AD1	5,707,908	1/13/98	Komine et al.	501	53	
	AE1	5,735,921	4/7/98	Araujo et al.	65	32.1	
	AF1	5,764,345	6/9/98	Fladd et al.	356	35.5	
	AG1	5,837,024	11/17/98	Fabian	65	17.4	
	AK1	5,970,746	10/26/99	Fujinoki et al.	65	102	

FOREIGN PATENT DOCUMENTS								
		Document Number	Date	Country	Class	Sub-Class	Translation Yes No	
	AA	98/27018	6/25/98	PCT	C03B	19/14	X	
	AB	98/52879	11/26/98	PCT	C03B	19/14	X	
	AC	0 401 845 A2	12/12/90	EPO	G02B	1/00	X	
	AD	0 483 752 A2	5/6/92	EPO	C03C	3/06	X	
	AE	0 488 320 A1	6/3/92	EPO	C03C	3/06	X	
	AF	0 607 433 B1	11/4/98	EPO	C03B	23/06	X	
	AG	0 636 586 A1	2/1/95	EPO	C03C	3/06	X	
	AH	0 870 737 A1	10/14/98	EPO	C03C	3/06	X	
	AI	0 901 989 A1	3/17/99	EPO	C03B	19/14	X	
	AJ	2,184,434	6/24/87	United Kingdom	C03B	20/00	X	
	AK	2,704,015 A1	8/3/78	Germany	C03B	23/04	X	
	AL	63-210044	8/31/88	Japan	C03C	17/245	X	
	AM	1-138145	5/31/89	Japan			X	
	AN	62-235223	10/15/87	Japan (abstract)	C03B	20/00		X
	AO	67/22389	11/1/67	Japan				X

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OTHER ART (Including Author, Title, Date, Pertinent Pages, etc.)

	AA	Douglas Allan, Charlene Smith, N.F. Borrelli and T. P. Seward III, <i>193-nm excimer-laser-induced densification of fused silica</i> , OPTICS LETTERS/Vol. 21, No. 24/December 15 1996, pp. 1960-1962
	AB	Roger J. Araujo, Nicholas F. Borrelli and Charlene Smith, <i>INDUCED ABSORPTION IN SILICA (A PRELIMINARY MODEL)</i> , SPIE Vol. 3424, 1998, pp. 25-32.
	AC	George H. Beall, <i>INDUSTRIAL APPLICATIONS OF SILICA</i> , Reviews in Mineralogy, 29, pp. 469-505
	AD	N.F. Borrelli, Charlene Smith, Douglas C. Allan and T.P. Seward III, <i>Densification of fused silica under 193-nm excitation</i> , J. Opt. Soc. Am B/Vol 14, No. 7/July 1997, pp. 1606-1615.
	AE	J.W. Fleming and D.L. Wood, <i>refractive index dispersion and related properties in fluorine doped silica</i> , APPLIED OPTICS/Vol. 22, No. 19/October 1, 1983, pp.3102-3104.
	AF	David L. Griscom, <i>Optical Properties and Structure of Defects in Silica Glass</i> , The Centennial Memorial Issue, 99[10], 1991, pp. 926-942.
	AG	Hideo Hosono, Masafumi Mizuguchi, and Hiroshi Kawazoe, <i>Effects of fluorine dimer excimer laser radiation on the optical transmission and defect formation of various types of synthetic SiO₂ glasses</i> , APPLIED PHYSICS LETTERS, Vol. 74, No. 19, 10 May 1999, pp. 2755-2757.
	AH	Toshio Ibuki et al., <i>ABSORPTION SPECTRA OF SiCl₄, SiCl₆, SiF₃CH₃ AND GeF₄ IN THE VUV REGION</i> , Chemical Physics Letters, Vol. 136, No. 5, 15 May 1987, pp. 447-450.
	AI	W.D. Kingery, H.K. Brown, and D. R. Uhlmann, <i>Introduction to Ceramics, Second Edition</i> , John Wiley & Sons, 1976. pg. 654.
	AJ	M. Kyoto, Y. Ohoga, S. Ishikawa, Y. Ishiguro, <i>Research and Development Group, Sumitomo Electric Industries Ltd</i> , 1993 Chapman and Hall, pp. 2738-2744.
	AK	I. H. Malitson, <i>Interspecimen Comparison of the Refractive Index of Fused Silica</i> , Journal of the Optical Society of America, Vol. 55, No. 10, pp. 1205-1209.
	AL	James A. McClay and Angela S.L. McIntyre, <i>157 nm optical lithography: The accomplishments and the challenges</i> , Solid State Technology, June 1999, pp. 57-68.
	AM	Taro Moritani et al., "Glass Engineering Handbook," April 20, 1964, Asakura Shoten, p. 611, Clause 2.1 Fabrication.,

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OTHER ART (Including Author, Title, Date, Pertinent Pages, etc.)

	AN	M. Rothschild, D.J. Ehrlich & D.C. Shaver, <i>Effects Of Excimer Laser Irradiaiotn On The Transmission, Index Of Refraction, And Density Of Ultraviolet Grade Fused Silica</i> , Appl. Phys. Lett 55(13) 9/25/99, pp. 1276-1278
	AO	Charlene M. Smith, Lisa A. Moore, <i>Fused Silica for 157 nm Transmittance</i> , SPIE Vol. 3676, 15-17 March 1999, pp. 834-841.
	AP	D.R. Sempolinski, T.P. Seward, C. Smith, N. Borrelli, C. Rosplock, <i>Effects of Glass Forming conditins on the KrF-Excimer-Laser-Induced Optical Damage In Synthetic Fused Silica</i> , Journal of Non-Crystalline Solids 203 (1996) pp. 69-77
	AQ	Richard H. Stulen & donald W. Sweeney, <i>Extreme Ultraviolet Lithography</i> , Optics & Photonics News, August 1999, Vol. 10, No. 8, pp. 34-38
	AR	Richard E. Schenker & William G. Oldham, <i>Ultraviolet-induced Densification In Fused Silica</i> , J. Appl. Phys. 82 (3), 1 August 1997, pp. 1065-1071
	AS	Koji Tsukuma, N. Yamada, S. Kondo, K. Honda & H. Segawa, <i>Refractive Index, Dispersion and Absorption of Fluorine-Doped Silica glass in the Deep UV Region</i> , Journal of Non-Crystalline Solids 127 (1991), pp. 191-196
	AT	H. Takahashi, A. Oyobe, M. Kosuge & R. Setaka, <i>Characteristics of Fluorine-Doped Silica Glass</i> , Technical Digest: European Conference on Optical Communication, (1986) pp. 3-6
	AU	K. Tsukuma, N. Yamada, S. Kondo, K. Honda & H. Segawa, <i>Refractive Index, Dispersion and Absorption of Fluorine-Doped Silica Glass in the Deep UV Region</i> , Journal of Non-crystalline Solids 127 (1991), pp. 191-196
	AV	W. Vogel, <i>Chemistry of Glass</i> , The American Ceramic Society, Inc. (1985), pp. 203-205.
	AW	PTO: 96-0383, Journal, Title: Sheet Glass
	AX	Corning HPFS®, ArF Grade, Product Literature, 1999
	AY	Shin-Etsu Chemical Homepage, Semiconductor Materials Division, http://www.shinetsu.co.jp/english/profile/division/sem-div/sem-div.html , (5/17/99) pp. 1-2
	AZ	Purity and Chemical Reactivity, Isimoto Co., Ltd. Homepage, Purity and Chemical Reactivity, http://www.isimoto.com/isimoto/english/feature1.html , (5/17/99) pp. 1-3

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OTHER ART (Including Author, Title, Date, Pertinent Pages, etc.)

	AA1	Products for Optics, Isimoto Co., Ltd. Homepage, http://www.isimoto.com/isimoto/english/variation 3.html , (5/17/99) pp. 1-2
	AB1	Product Information, Isimoto Co., Ltd. Homepage, http://www.isimoto.com/isimoto/english/product info.html , (5/17/99) pp. 1-4
	AC1	High Purity Quartz Glass Products, http://www.toshiba-ceramics.com/quartz.html , (5/17/99) pp. 1-2
	AD1	Heraeus Quarzglas, Fused Silica for 157 nm photomasks, Bruno Uebbing 157 nm workshop, 2/16/99 Phoenix/USA, pp. 1-5
	AE1	Heraeus, Product Literature, Quartz Glass for Optics Optical Properties, Edition 1994
	AF1	Heraeus Amersil, Product Literature, The Leader in Silica Glass & Fabricated Quartz Glass Semiconductor Products: CVD Tubes, (9/14/99)
	AG1	Heraeus Amersil, Product Literature, The Leader in Silica Glass & Fabricated Quartz Glass: Diffusion Tubes, (9/14/99)
	AH1	Heraeus Amersil, Product Literature, The Leader in Silica Glass & Fabricated Quartz Glass Semiconductor Products: Furnace Tubes, (9/14/99)
	AI1	Heraeus Amersil, Product Literature, The Leader in Silica Glass & Fabricated Quartz Glass Semiconductor Products: Windows, (9/14/99)
	AJ1	Heraeus Amersil, Product Literature, The Leader in Silica Glass & Fabricated Quartz Glass Semiconductor Products: Optical Propertie, (9/14/99)
	AK1	Heraeus Amersil, Product Literature, The Leader in Silica Glass & Fabricated Quartz Glass Semiconductor Products: Thermal Properties, (9/14/99)
	AL1	Heraeus Amersil, Product Literature, The Leader in Silica Glass & Fabricated Quartz Glass Semiconductor Products: Raw Materials, (9/14/99)
	AM1	Heraeus Amersil, Product Literature, The Leader in Silica Glass & Fabricated Quartz Glass Semiconductor Products: Corporate Profile, (9/14/99)

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	AN1	Encyclopedia Britannica Online Article, blow molding, (8/30/99)
	AO1	Encyclopedia Britannica Online Article, glassblowing (8/30/99)
	AP1	Encyclopedia Britannica Online Article, industrial glass (8/30/99)
	AQ1	Encyclopedia Britannica Online Article, illustration (8/30/99)
	AR1	Graphite Die Mold, Product Literature, http://graphitediemold.com/product.html (8/23/99)
	AS1	Graphite Die Mold, Mission Statement, (8/23/99)
	AT1	Graphite Die Mold, New and Views, (8/23/99)
	AU1	Customerseric@e-composites.com , Tool making process, (8/23/99) pp. 1-5
	AV1	
	AW1	
	AX1	
	AY1	
	AZ1	

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	AA	4,676,814	6/30/87	Ross et al.	65	3.12	
	AB	5,935,733	8/10/99	Scott et al.	430	5	
	AC	6,016,669	1/25/00	Correa et al.	65	109	
	AD	5,699,183	12/16/97	Hiraiwa et al.	359	355	
	AE	6,087,283	7/11/00	Jinbo et al.	501	54	
	AF						
	AG						

FOREIGN PATENT DOCUMENTS								
		Document Number	Date	Country	Class	Sub-Class	Translation Yes No	
	AH	0 163 752	12/11/85	EPO	C03B	37/018	X	
	AI	0 691 312	1/10/96	EPO	C03C	3/06	X	
	AJ	0 147 029	10/30/84	EPO	C03B	37/016	X	
	AK	0 691 312	1/10/96	EPO	C03C	3/06	X	
	AL	0 735 006	10/2/96	EPO	C03B	19/14	X	
	AM	257,590	3/24/27	United Kingdom				
	AN	00/24684	5/4/00	PCT	C03B	32/00	X	
	AO	P2001-19450A	1/23/01	Japan	C03B	20/00	X	
	AP	2,184,434	6/24/87	United Kingdom	C03B	20/00		
	AQ	P2001-19450A	1/23/01	Japan	C03B	20/00	X	
	AR	1 084 995A1	3/21/00	EPO	C03B	19/14	X	
	AS	1 035 084A2	9/13/00	EPO	C03C	19/14	X	

OTHER ART (Including Author, Title, Date, Pertinent Pages, etc.)		
	AT	Patent Abstracts of Japan, vol. 1996, no. 07, 31 July 1996, JP 08067530, SUMITOMO ELECTRIC IND LTD., 12 March 1996, Abstract.
	AU	Patent Abstracts of Japan, vol. 012, no 191 (C-501), 3 June 1988, JP 62-297233, FUJITSU LTD., 24 December 1987, Abstract.
	AV	Patent Abstracts of Japan, vol. 006, no. 252 (P-161), 10 December 1982, JP 57-147604, NIPPON DENKI KK, 11 September 1982, Abstract.

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